

# Workshop on Recovery of the Far Eastern (Amur) Leopard, Vladivostok, Russia

by Dale Miquelle\*

**S**eventy representatives from eight countries gathered in Vladivostok Russia from May 11-14, 2001 to discuss the grave situation surrounding the critically endangered Far Eastern (Amur) leopard (*Panthera pardus orientalis*). The intent of this workshop, co-hosted by the US-based Wildlife Conservation Society (WCS) and Russia's Ministry of Natural Resources, was to determine what immediate steps must be taken for recovery of this leopard subspecies.

Several newly acquired pieces of information suggested a need for immediate action, and hence a need for this workshop to chart the appropriate course of action. Four surveys in southwest Primorskii Krai, Russia, conducted between 1997 and 2000 indicated that the number of individuals has remained at 25-40, indicating a perhaps stable population has been retained there (Pikunov et al. 1999, Aramilev et al. 1999, Aramilev and Fomenko 2000, Pikunov et al. 2000).

However, alarming news has come out of China, where recent surveys conducted in Jilin (Yang et al. 1998) and Heilongjiang Provinces (Baogang 1999) indicated that Far Eastern leopards virtually no longer exist in northeast China, thereby confirming that, with the possible exception of the Korean peninsula, the last population of Far Eastern leopards is retained in a small peninsula of habitat in the southernmost portion of the Russian Far East.

## Genetic analysis of leopards

Perhaps even more alarming are the results of recent genetic analyses of this subspecies, conducted by Olga Uphyorkina, of the Far Eastern Institute of Biology and Soils (Russian Academy of Sciences), at the U.S. based National Cancer Institute's Laboratory of Genomic Diversity (under the direction of Dr. Stephen O'Brien). The results indicated remarkably low levels of genetic diversity, similar to that found in the Florida puma (*Puma concolor coryi*), prior to reintroduction of Texas genes, and the relict Asiatic lion (*Panthera leo persica*). Such levels of genetic reduction have been associated with severe congenital and reproductive abnormalities in some small populations. While no such evidence has yet been confirmed for the Far Eastern leopard, recent

surveys indicating poor recruitment may be a warning signal that inbreeding may be affecting reproductive success.

The workshop, funded with support of the U.S. Fish and Wildlife Service and the IUCN Cat Specialist Group, focused on six primary management concerns:

1. improved management of existing habitat in Southwest Primorskii Krai;
2. genetic management of both the captive and wild populations;
3. reintroduction;
4. management of deer farms – large penned areas that retain sika deer (*Cervus japonensis*) for harvest of antlers in velvet, which are used in traditional Asian medicines. These farms are a magnet for leopards, and may be a sink where high mortality occurs;
5. hunting management and anti-poaching efforts; and
6. international cooperation.

## Merger of protected areas in Russia

Based on an in-depth GIS analysis of data emanating from the last four surveys (Murzine and Miquelle, unpubl. report), representatives of both WCS and the Far Eastern Branch of WWF recommended merger into a single large legal entity of the three existing protected areas in southwest Primorskii Krai, which are currently managed by two governmental divisions. Such a move could have a stronger impact on land management decisions, and provide a stronger presence in the region, with more interactions with local people and local administrations. WWF is supporting an expedition this summer to determine the appropriate form of protection for this region.

## Leopards in China and South Korea

Good news arrived with Chinese colleagues when Zhang Chuan Jun of the Jilin Forestry Department described a newly proposed "Hunchun Tiger-Leopard Protected Area" in Jilin Province. The proposed protected area would parallel existing habitat on the Russian side, greatly expand the amount of protected habitat, and perhaps encourage a growth in the size of this single population. With land already allocated by the Hunchun Forestry Department, it is hoped that this new protected area will become a reality within a year.

Video footage of large felid tracks provided by Sang-Hoon Han of the Korean Wildlife Information & Research Center raised the interesting possibility that leopards still occur in South Korea.

## Possible reintroduction and captive breeding programme

Although the idea of a reintroduction program has been previously discussed, as in the 1996 "Workshop for Development of a Recovery Plan for the Far Eastern leopard" (Miquelle et al. 1996), participants in this most recent workshop strongly recommended that a reintroduction program be implemented in the immediate future. Locations suggested as potential reintroduction sites in Russia include the southern Sikhotealin Mountains in Olga Raion (proposed by V.V. Aramilev of the Institute for Sustainable Use of Natural Resources) and along the Chinese-Russian border in Pogranichny Raion (proposed by V. Yudin, of the Institute of Biology and Soils). Both sites represent former habitat of this subspecies.

Controversy has surrounded management of the captive population because

**Amur Leopard Workshop Resolution**  
**May 11-14, 2001**  
**Vladivostok, Primorski Krai, Russia**

**Participants of the international workshop believe that:**

The Far Eastern/Amur leopard (*Panthera pardus orientalis*) is in immediate danger of extinction. With an estimated 25-40 individuals in the Russian Far East, 4-7 in northeast China (Jilin Province), reproduction apparently at a very low level, and genetic diversity severely impoverished, this subspecies must be considered one of the world's most endangered large cats. Despite the immediacy of the threat, conservation efforts in the region have been inadequate to reverse the trend towards extinction. The purpose of this workshop was to:

1. derive a set of management recommendations to ensure the continued survival of the Far Eastern leopard in the wild in its historical range;
2. act as an advertisement of its plight; and
3. provide a mechanism for implementing new conservation measures.

**Therefore, workshop participants resolve that:**

1. The conservation of the existing population of Far Eastern leopards in its existent range in Southwest Primorski Krai, and wherever else they may occur in China or the Korean peninsula is of the highest priority.
2. The Jilin Provincial Forestry Department be highly commended for its progress in creating a protected area for tigers and leopards in Hunchun, Jilin Province, China, along the Russian border. Workshop participants fully approve and support these efforts to create a specially protected area adjacent to the existing leopard population in Southwest Primorski Krai.
3. The governments of Russia, China, and DPR Korea be requested to assess opportunities for creation of jointly managed, transboundary protected areas.
4. The optimization of a Specially Protected System in Southwest Primorski Krai be accomplished through creation of a single protected territory in the immediate future.
5. The collection of additional ecological, medical, and reproductive measurements of the wild population be taken to prepare for restoration actions and that the captive population be prepared as a potential source. If conditions deem it necessary, the captive zoo population can be used to supplement, restore, or sustain the existing wild population.
6. The conservation of the Far Eastern leopard requires establishment and maintenance of additional populations within its historic range. Such a reintroduction program will make use of the captive population and will be undertaken in accordance with existing international guidelines.
7. The anti-poaching activities in the contemporary and historic range of the Far Eastern leopard be coordinated and that financial support be found for these efforts.
8. The activities of protected territories and hunting leases to advance leopard conservation be evaluated and that financial support for these organizations be found as part of a general leopard conservation program.
9. The effort to conserve the Far Eastern leopard include efforts with deer farms to develop programs mutually beneficial to both stakeholders.
10. The proposed GEF project "Fire Management in Forests of Special Biological Importance in the Amur-Sikhote-Alin Ecoregion" could be of great assistance in protecting critical habitat for Far Eastern leopards if the area included in this project is extended to Southwest Primorski Krai.
11. The attached recommendations are approved as the basis for further recovery activities for the Far Eastern leopard.
12. The implementation of these recommendations requires establishment of a Far Eastern Leopard Steering Committee, and that such a group be coordinated in its efforts by a Chairman and an Executive Secretary.

**Chairman:**

G. V. Kolonin

**Executive Secretary:**

to be determined

**Working group members:**

- V. V. Aramilev
- T. D. Arzhanova
- Y. A. Darman
- P. V. Fomenko
- V. G. Korkishko
- V. Nesterenko
- D. G. Pikunov
- I. O. Suslov
- S. A. Zubtsov
- O. Uphyrkina
- C. Breitenmoser
- U. Breitenmoser
- D. G. Miquelle
- S. O'Brien
- S. Christie
- M. Hotte
- representative of hunting society
- representative of Krai Administration
- Endi Zhang
- Zhang Chuan Jun
- Tao Jin, representative of State Forestry Administration (P.R. China)
- representative from DPR Korea.

Founder #2, a male that was housed at Frankfurt Zoo, has been long suspected to be a representative of another subspecies. The recent genetic analyses indicated that not one, but two founders are likely representatives of the North Chinese subspecies (*P. p. japonensis*). However, it has been recommended that since genetic exchange of these two subspecies likely occurred until the recent past (as recently as 200 years ago), presence of these genes should be considered analogous to a natural (and likely beneficial) process that would have occurred in the absence of human impact and fragmentation of the landscape. Therefore, the genetic/captive management group recommended that the captive population be considered suitable for reintroduction efforts.

Co-chairpersons of the EEP Far Eastern Leopard Program, Sarah Christie and Tanya Arzhanova, made it clear that the captive management program will continue to generate financial support for the conservation of wild leopards. It will also build up both numbers and genetic diversity of leopards so as to enable the future removal of leopards for a possible reintroduction or supplementation attempt (should this be required) without negative impact on the genetic and demographic health of the captive population.

Clear evidence of ill effects of inbreeding in the existing population does not exist, and therefore genetic specialist Steve O'Brien suggested caution in considering supplementation of the existing population with animals from captivity. However, it was a recommendation of the captive/genetic group that complete biomedical evaluations of 4-10 representatives of the wild population be conducted to assess the potential for negative impacts of inbreeding depression.

### Control of poaching and role of hunting leases

Increased efforts to control poaching of both wild felids and their prey has met with some success in recent times. Creation of a Khasanski "Inspection Tiger" team, led by A. Yurchenko, and supported by Tigris Foundation, new support to anti-poaching efforts of the Barsovy Wildlife Refuge by WWF, and new anti-poaching efforts in Kedrovya Pad Zapovednik organized by "Tiger Volunteers" and the Primorskii Krai Society of

Hunters and Fisherman, appear to be paying off in a reduction in the rate of poaching. However, better coordination is needed amongst these groups, and the recommendations of the workshop call for a more cohesive approach to anti-poaching efforts.

More controversial was the role of hunting leases in leopard conservation. While some scientists, such as leading leopard expert Dimitri Pikunov, argued strongly that hunting of ungulates should be outlawed in southwest Primorskii Krai to increase protection for leopards, others suggested that such a move was not a politically viable solution, and pointed to Neshinskoe Hunting Lease as a model, where hunting with dogs or steel traps has long been discontinued, and where leopard density is high. A cooperative program led by the Wildlife Conservation Society and the Institute for Sustainable Use of Natural Resources will seek to increase fiscal security to Neshinskoe Hunting Lease by developing alternative sources of income (e.g. encouraging tourism), while at the same time increasing prey numbers and better controlling hunter activities. A road closure program, with road blocks and guard posts along each of the major access points, should greatly increase protection of this area.

A new predation compensation program, developed by Tigris Foundation and Phoenix Fund, again in association with the Khasanski Inspection Tiger Team, appears to be successfully appeasing owners of deer farms, who suffer losses to tigers and leopards. Workshop participants recommended that this program be extended to other deer farms.

### Steering Committee to shape policy and management

Perhaps the most important outcome of the workshop was the creation of a Steering Committee that will be led by Gennady V. Kolonin (of the Russian Ministry of Natural Resources), whose call for action to save the Far Eastern leopard at a recent tiger conference in Harbin, China, was the initiative for this workshop. This Steering Committee, which includes outside specialists such as IUCN Cat Specialist Group's co-chairpersons Urs and Christine Breitenmoser, will hopefully be a driving force in shaping policy and management actions to save the Far Eastern leopard across its range.

## References

- Aramilev, V.V., P. Fomenko, and D.G. Miquelle. 1999. A 1998 survey of leopards. *Zov Taiga*: 4:6-11 (in Russian).
- Aramilev, V.V., P.V. Fomenko. 2000. Simultaneous Survey of Far Eastern Leopards and Amur Tigers in Southwest Primorskii Krai, Winter 2000.
- Baogang, S., D.G. Miquelle, Y. Xiaochen, E. Zhang, S. Hiyai, G. Goshen, D.G. Pikunov, Y.M. Dunishenko, and I.G. Nikolaev, and L. Daming. 1999. 1999 Survey of Amur Tigers and Far Eastern Leopards in Eastern Heilongjiang Province, China, and Recommendations for their Conservation. A final report to The Wildlife Conservation Society. 67pp.
- Miquelle, D.G., T.D. Arzhanova, and V. Solkin (eds.). 1996. A Recovery Plan for Conservation of the Far Eastern Leopard: results of an international conference held in Vladivostok, Russia. 81pp.
- Murzine, A. and D. Miquelle. Unpubl. Report. Spatial distribution of Far Eastern leopard in southwest Primorskii Krai, and recommendations for their conservation.
- Pikunov, D.G., V.K. Abramov, V.G. Korkishko, I.G. Nikolaev, A.I. Belov. 2000. "Sweep" Survey of Far Eastern Leopards and Amur Tigers. Final report.
- Pikunov, D.G., V.V. Aramilev, P.V. Fomenko, D.G. Miquelle, B.K. Abramov, and V.K. Korkishko. 1999. Numbers and distribution of leopards in the Russian Far East. Pages 277-297 in A.A. Aristova (ed.) *Rare mammal species of Russia and neighboring territories*. Russian Academy of Sciences Theriological Society, Moscow (in Russian).
- Yang, S., J. Jiang, Z. Wu, T. Li, X. Yang, X. Han, D.G. Miquelle, D.G. Pikunov, Y.M. Dunishenko, and I.G. Nikolaev. 1998. A survey of tigers and leopards in eastern Jilin Province, China, winter 1998. A final report to the UNDP and The Wildlife Conservation Society. 38pp.

\* Wildlife Conservation Society  
Russian Far East  
Email: <dalemq@online.marine.su>